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ACC.13
62nd Annual Scientific Session & Expo
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E935
JACC March 12, 2013
Volume 61, Issue 10

Imaging

CMRI CHARACTERISTICS OF CARDIAC SARCOMA: A THREE-YEAR SINGLE-CENTER EXPERIENCE

Poster Contributions
Poster Sessions, Expo North
Saturday, March 09, 2013, 3:45 p.m.-4:30 p.m.

Session Title: Imaging: MRI III - CMR in Myocardial Disease and Dysfunction
Abstract Category: 19. Imaging: MRI
Presentation Number: 1184-366

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Background: Cardiac sarcomas are a rare occurrence. They represent one-quarter of all malignant cardiac tumors, and usually have a dismal overall outcome. Diagnosis of these tumors can be challenging, since most of these cases are diagnosed intra-operatively, and may often be mistaken with myxomas. Surgical resection is currently the best option. However, the approach used for surgery depends on the type of tumor, the location of the tumor, and the extent of myocardial involvement. This information can be obtained pre-operatively using Cardiac Magnetic resonance (CMR), which may help improve the overall outcome.

Methods: We prospectively enrolled patients with cardiac tumors. Patients with cardiac sarcomas and myxomas were selected for this analysis. CMR images were read for morphologic and tissue characteristics by an experienced cardiologist, who was blinded to the diagnosis of the tumor.

Results: There were 25 patients who had cardiac sarcomas, and 10 patients who had myxomas. Table 1 shows a comparison of patient and tumor characteristics. The patients with sarcoma were younger, and more likely to have invasion of the free wall or other structures. CMR tissue characterization revealed increased first pass perfusion with sarcomas, as opposed to myxomas. The sensitivity of first pass perfusion alone was found to be 88%, with an associated likelihood ratio of 2.93.

Conclusion: Dedicated CMR is an excellent tool for identifying the possibility of cardiac sarcoma; a guide to surgical therapy.

	Sarcoma	Myxoma	
	n=25	n=10	p value
Age	46 ± 16	66 ± 12	0.001
Female gender	18 (72%)	9 (90%)	0.9
Smoker	6 (24%)	2 (20%)	0.7
CHF	0 (0%)	1 (10%)	0.6
Valvular disease	0 (0%)	1 (10%)	0.6
CAD	2 (8%)	2 (20%)	0.6
HTN	6 (24%)	5 (50%)	0.2
Arrhythmias	2 (8%)	3 (30%)	0.2
invasion of free wall	15 (60%)	0 (0%)	0.004
invasion of other structures	16 (64%)	1 (10%)	0.01
CMR tissue characterization T1 characteristics compared to myocardium			
isointense	23(92%)	8 (80%)	0.6
hyperintense	2 (8%)	2 (20%)	0.6
T2 tissue characteristics compared to myocardium			
hypointense	2 (8%)	0 (0%)	0.9
isointense	1 (4%)	1 (10%)	0.4
hyperintense	22 (88%)	9 (90%)	0.8
First pass perfusion with gadolinium based contrast agent			
none	3 (12%)	7 (70%)	0.002
heterogeneous	22 (88%)	3 (30%)	0.002